North Yemen: The Neolithic

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The prehistory of North Yemen and the surrounding regions between c. 20,000—2000 B.C. is still rather dim. Elsewhere in Western Asia the latter part of this period saw the transition from a hunting and collecting type of life (terminal Paleolithic) to food production (Neolithic). But nothing on these several millennia is available at the moment for the uplands of the south-western Arabian Peninsula, the Aṣir-Yemen Plateau. How and when some sort of food production was locally adopted is still to be discovered.

However, some useful indications of the existence of "neolithic" groups have been discovered during the Yemeni-Italian Cooperation survey in the Wādī Ḏanah Basin since 1980. An investigation of the "neolithic" problems was undertaken by A. Zarattini in 1983, and more specifically by the present writer in 1984—85 on the basis of an anthropological and paleoecological approach. The following is a report on the findings and an attempt at their interpretation.

As used here, Neolithic is a colloquial, comparative term for a complex of findings linked to at least an incipient and partial domestication of nature. The subject falls between the end of yet undiscovered Terminal Paleolithic traditions and the appearance of a village, pottery-using culture around 2000 B.C., A. de Maigret's Bronze Age[1].

Field reconnaissance

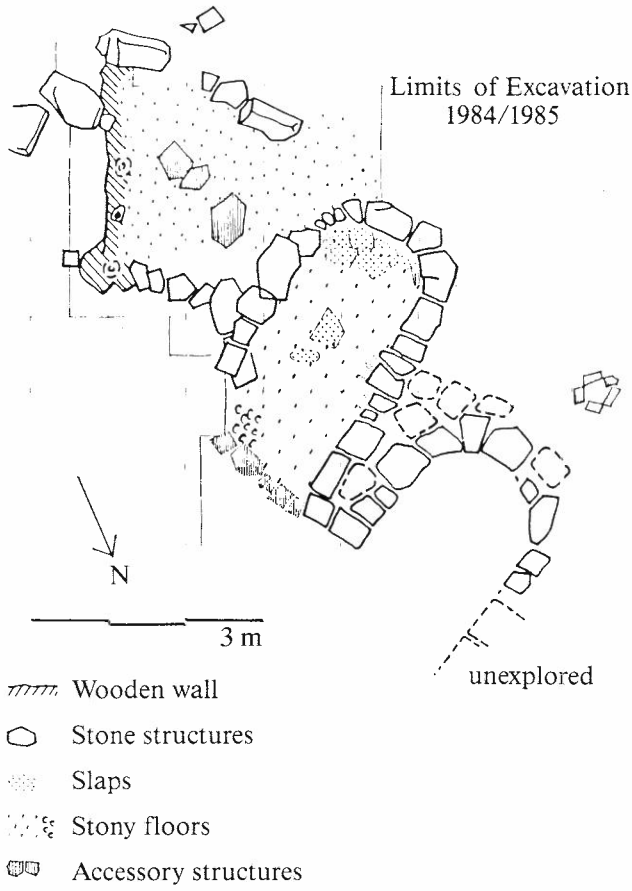
The identification of a neolithic stage in Yemen rests on two factors: the occurrence of chipped stone scatters without pottery in surface conditions, and their apparent association with simple stone structures. These structures comprise "enclosure" alignments and ovoid or elliptical "huts"; "enclosure" or "hut" are no more than descriptive terms. Stone artefacts include thinned, often bifacially retouched types, the so-called "foliates".

The lack of pottery or the "aceramic" status of this Neolithic is troubling insofar as it deprives students of an important source of information. Other categories of artefacts also seem to be lacking, such as polished stone or bone tools. Their very lack, however, may constitute an important characteristic feature of the Neolithic in Yemen and south-central Arabia.

Non-Paleolithic, aceramic sites have been identified at several locations on the eastern plateau of North Yemen, at elevations of about 2000—2200 metres: Wādī al-ʿUsh or ʿIshsh (four sites); Jebel Quṭrān in the Jebel Aʿmās area (tested in 1983); Ṣirm al-ʿAbādilah; Jebel Shaʿīr; An-Najd al-Abyaḍ (tested in 1984) and nearby Wādī aṭ-Ṭayylah. Only two sites could be tested before the selection of *WTHiii*, near middle Wādī aṭ-Ṭayylah in the Khawlān, for excavation and paleoenvironmental studies (1984—85). This site has since provided good evidence of buried neolithic occupations and an abundant yield of excavation data.

Additional sites may be represented by lithic artefacts in mixed, surface aggregates, as observed on the Jaddānat al-ʿŪmarah limestone tableland and at Bānī Sulayḥ, Ḍulāʿ al-Aʿmās, and Jebel al-ʿArqūb. According to preliminary surveys, neolithic occupations should also exist near Yalā ad-Ḏurayb on the easternmost foothills, and to the west in the Qāʿ Jahrān plain, south of Maʿbar.

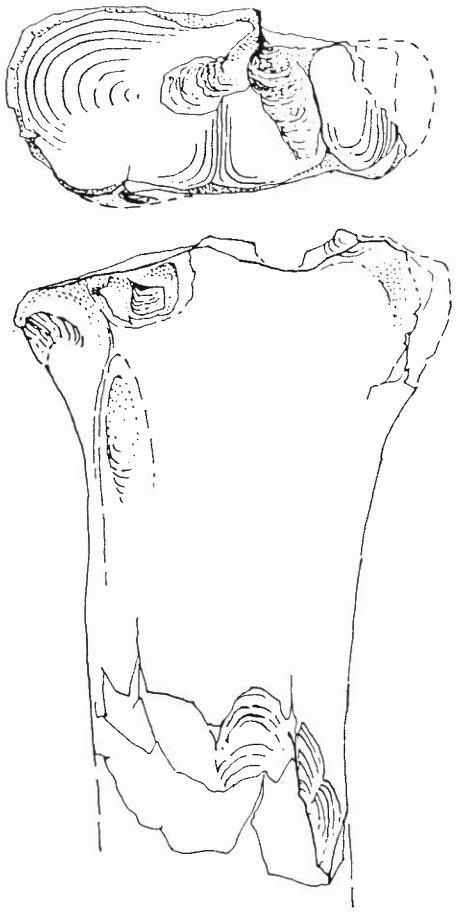
Among the chief problems encountered are the relationship between surface occurrences and subsurface stratification, and the understanding of the precise sedimentary setting of sites in terms of Holocene stratigraphy and paleoenvironment. An additional problem is the patterning of human activity at each individual site, which is



WĀDĪ AṬ-ṬAYYLAH: Building F 25

Plan of neolithic elliptical "hut", Wādī aṭ-Ṭayylah, Site WTHiii (F. G. Fedele, 1985).

1 A. de Maigret, A Bronze Age for Southern Arabia, East and West, n.s. 34 (1984).



Left radius of bos from the lower "neolithic" level of WTHiii. 1985 excavations (F. G. Fedele, 1985).

considered to be important for the assessment of the function of structures and has also a bearing on site definition. While the soundings in 1983 and 1984 suggested the usefulness of subsurface investigation, the essential aim of the larger-scale excavations at *WTHiii* was to address those problems.

Site excavation

A level with scanty "neolithic" materials appeared under a surface layer with 2nd-millennium structures at *NABvii*, a lower slope site in the Najd al-Abyaḍ valley. Partly as a consequence, trial trenches were opened at nearby *WTHiii*. This is an open-air site of about 0.3 hectares, marked by a dozen stone structures interspersed with scatters of lithic artefacts. It lies at 2010 metres on a gently sloping surface near the right bank of middle Ṭayylah in the Precambrian granites. Structures are often made of large stone blocks. Perhaps less than 10% of surface finds may belong to later or even earlier frequentation; some fossilized bones have been found. The surroundings offer a context of great interest for the reconstruction of the river history.

An area of about 70 square metres has been opened by excavation. Both horizontal and vertical controls were employed and, possibly for the first time in North Yemen, detailed attention was paid to microstratigraphy and the environmental significance of sediments and cultural layers. Laboratory analyses by A. Palmieri and other scientists of the Italian programme are under way.

An east-west transect-trench 22 metres long and two stone structures (F25, F37) were excavated in the upslope area of the site. Study of building F25 provided a glimpse of one of the elliptical "huts" which are attributed to the Neolithic. This turned out to be a rather complex habitation structure mutilated by sheet erosion. The main oval was floored with selected angular stones and had a bench in the "apse", ashy remains of a hearth, and a slab in the middle which may have supported a central post. A flimsy structure of stakes and branches (a shed?) was appended to the main oval body, while on the opposite side additional stone-based rooms seem to have existed.

In the central area of the site a portion of a large-stone alignment was studied. It was possible to link it to the sediment and soil stratification recognized at Wādī aṭ-Ṭayylah. The main phase of activity near the alignment was indicated by "domestic" refuse mixed with flint chipping debris and a stone anvil in its original position. This suggested that communal, open-air or tent-covered activities took place along this low but substantial wall across the settlement.

It is now clear that most or all of the half-buried stone structures at *WTHiii* are associated with the surface of a slighty organic, gray ancient soil ("Ṭayylah paleosol"), indicating slope stability and some vegetation cover. Preliminary laboratory tests confirm that soil colloids are present. On the other hand building F37, apparently dating from the Early Islamic period (Bānī ʿAṣāl phase), is linked to modern-type, sandy and silty slope deposits.

Three test pits revealed the existence of still older traces of human presence, buried in previous sediments to a depth of 0.8 to one metre. There are possibly two superimposed "neolithic" layers, preceded by an earlier episode of human activity ("Mesolithic"?). Some animal bones were recovered with the older neolithic material; they represent, to our knowledge, the earliest animal samples so far found in North Yemen.

These weathered and extremely crushed bones were subjected to painstaking laboratory treatment. They comprise mandible, radius and phalanx fragments belonging to medium-sized bovids, which may well be the Near Eastern variety of wild ox or *Bos primigenius*. It is worth noting that the context of these finds, from the deeper levels of *WTHiii*, points to episodes of butchering, burning (near rough stone features?), and intensive stone-flaking.

The tiny bone series from the main neolithic occupation at *WTHiii*, according to the writer's analysis, includes remains of a small *Bos* (right humerus, upper molars, splinters of long bones) and traces of ovicaprids; their wild or domesticated status cannot be ascertained. A

fragment of a marine shell, possibly a cypraeid, was found at the surface of the site. The site of *NABvii*, neolithic level, has yielded remains of more or less immature ovicaprids and subadult cattle.

Several kinds of raw materials were used in stone manufacture in the Wādī aṭ-Ṭayylah and Najd al-Abyaḍ area. Most of the gray cherts and occasional vein quartz, arenites, vitric tuffs and basalts, were traced to their sources in the more or less immediate zone of the riverbed. The Jebel al-ʿArqūb limestones, which frame the upper Ṭayylah drainage, provide rich and ready supply of poor but useful flint and chert nodules. It remains uncertain, where the obsidian came from.

Both wild and domesticated species of ovicaprids and cattle are reported by S. Bökönyi from Jebel Qutrān (*in litteris* and as yet undetailed). This south-eastern site comprises a double row of granite blocks forming a large semi-circular construction. One of the stones on the inner row bears a full-relief carving of five pairs of superimposed ram's horns, a remarkable find. The associated lithic collection characteristically includes leaf-shaped bifacial foliates, gouges, "tranchets", and basalt rubbers and hammerstones[2].

Paleoclimates and chronology

In the Najd al-Abyaḍ and Wādī aṭ-Ṭayylah area, several details of a generalized, Late Pleistocene (?) and Holocene sequence have been mapped, the sequence comprising from bottom to top:

1. stream conglomerates and slope breccias filling a paleo-channel to the south of the modern riverbed;
2. a peculiar complex of alternating yellow and gray, sandy/clayey silts;
3. aggradational gravels and local riverbed erosion connected with the recent semiarid regime.

The *WTHiii* stratigraphy can be tied to this sequence. It has been subdivided into three principal phases:

1. the weathering mantle of the granites;
2. a complex of fine-grained sediments and soils with some organic content; the WTH paleosol is a part of it;
3. a sheet of silts and sands reflecting modern aridity.

According to the preliminary conclusions on sediments and climate, and their probable links with the rest of the Arabian Peninsula,[3] we can perhaps correlate the *WTHiii* Neolithic with the Mid-Holocene Pluvial and give it a date within the VI—IV millennia B.C. (calendar years).

In the core of the Arabian Peninsula, a long-term climatic trend towards aridity was interrupted by several oscillations which affected the landscape considerably. A phase of remarkable aridity between c. 18,000 and 8000 B.C. was followed by a rapid progression of rain increases which resulted, between c. 8000 and 5500 B.C., in the so-called Mid-Holocene Pluvial. Throughout the Arabian uplands, wādīs richer in water cut through their previous deposits and formed river terraces.

The latter part of this pluvial period was marked by a series of alternating moist and dry spells of uncertain length. I believe that this was the time when the monsoon wind regime settled into its modern pattern in the territory of Yemen, as far north as Hodeidah on the coast and at least the Ṣanʿā' Basin on the plateau. A monsoon-controlled, "wet" phase between c. 3500—2000 B.C., as is known from the Indus Valley[4], can perhaps be applied to Yemen. But already by the 4th—3rd millennia B.C. a new cycle of aridity was establishing itself in Arabia as well as elsewhere in the subtropical belt. I think that the process of modern desiccation began to affect the Yemen uplands about 2000 B.C. and became as widespread as today by the beginning of the A.D. era.

Towards a cultural interpretation

A major effort was made to understand the many artefact collections. Particular attention was given to the excavated material, concerning both its quantity and its context. New analytical approaches are being tested. The following historical interpretation seems to be emerging.

The Italian fieldwork, supplemented by comparisons with the rest of the Arabian Peninsula, has resulted in a preliminary definition of two neolithic aspects in North Yemen, possibly applicable to the Yemen and ʿAsīr uplands as a whole. One aspect, called Qutrān or Al-Ḥadā', seems to be linked to the recently defined Arabian Bifacial Tradition[5] of central Arabia and the desert. The other, called Ṭayylah or Khawlān, may be a specific and possibly later adaptation to the mountainous zone.

The Qutrān Neolithic prominently includes small and large bifacial foliates, stemmed arrowheads, heavy-duty tools such as adzes or gouges, a variety of scrapers and other light tools, and trihedral drill-points. As suggested

2 Activities of the Italian Archaeological Mission in the Yemen Arab Republic (1983 campaign), East and West, n.s. 33 (1983), 340-344.

3 W. C. Brice, ed., The environmental history of the Near and Middle East since the Last Ice Age, London and New York, 1978; S. S. Al-Sayari and J. G. Zötl, eds., Quaternary period in Saudi Arabia, vol. 1, Wien and New York, 1978; A. N. Garrard, C. P. D. Harvey and V. R. Switsur, Environment and settlement during the Upper Pleistocene and Holocene at Jubba in the Great Nefud, northern Arabia, Atlal 5 (1981), 137—148; A. Garrard, P. Harvey, F. Hivernel and B. Byrd, The environmental history of the Azraq Basin, in A. Hadidi, ed., Studies in the history and archaeology of Jordan, vol. 2, pp. 109—115, London, 1985; J. M. Wagstaff, The evolution of Middle Eastern landscapes, London and Sydney, 1985. Cf. also Ü. Brunner, Die Erforschung der antiken Oase von Mārib mit Hilfe geomorphologischer Untersuchungsmethoden, Mainz, 1983, pp. 13—14.

4 W. C. Brice, Conclusion, in W. C. Brice, ed., 1978, pp. 351—356.

5 C. Edens, Towards a definition of the western ar-Rubʿ al-Khali "Neolithic", Atlal 6 (1982), 109—124. Cf. also J. Zarins, A. al-J. Murad and K. S. Al-Yish, The Comprehensive Archaeological Survey Program, (a) The second preliminary report on the Southwestern Province, Atlal 5 (1981), 9—42, especially pp. 19—23.

by the Saudi Arabian survey programme[6], the Arabian Bifacial Tradition interacts with almost identical manifestations from the Emirates and Qatar, where its beginnings are to be placed before the ʿUbaid pottery culture and thus before 5000 B.C.[7].

The frequency of small arrow heads signals the role of hunting, but the samples of animal bones from Jebel Quṭrān, and perhaps a site in the ʿAsīr[8], extremely poor as they are, seem to indicate incipient pastoralism nearer to the mountains.

The Ṭayylah Neolithic seems to be characterized by a lack of spear heads, the rarity of foliates, and the outstanding development of the small-tool component. Rare foliates tend to be ovate in shape and rudely produced. Also lacking are the peculiar adzes of the Arabian Bifacial Tradition. The tool-kit is clearly dominated by various kinds of scraping, boring and cutting tools, reflecting a way of life in which branch-working and skin- or grass-cutting had gained importance. Both light tools and robust tools, as represented by rounded or elongated, angular scrapers, reveal the regular processing of soft or resilient organic materials. Composite tools largely made of perishable materials were obviously abundant.

Do these two neolithic aspects coexist in different regions of Yemen and represent cultural variants? Or do they rather depend on different activities by the same basic society? Or, again, is the difference only chronological? No final answer can be given. Yet, there seems to be enough continuity in the overall style of stone tool manufacture, coupled with innovations in individual lithic types or utilization patterns, to suggest that Ṭayylah may be a derived form of the Arabian tradition, increasingly adapted to life on the plateau. It is suggested that the latter be viewed as part of an "Upland Neolithic Tradition"[9].

The hypothesis that the Quṭrān aspect antedates the onset of this tradition at *WTHiii* needs further testing. The chipped-stone component of the Upland Tradition may be at the origin of the Bronze Age lithic industry[10].

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6 Interim reports in Atlal, annually since 1977.

7 Cf. H. Kapel, Atlas of the Stone Age cultures of Qatar, Copenhagen, 1967; H. Masry, Prehistory in Northeastern Arabia, Coconut Grove (Florida), 1974; B. de Cardi, The British Archaeological Expedition to Qatar 1973—1974, Antiquity 48, 191 (1974), 196—200; B. de Cardi, ed., Qatar archaeological report: Excavations 1973, Oxford, 1978.

8 C. Edens, 1982, p. 119 (Sharorah). Originally reported by P. E. L. Smith and G. Maranjian, Two "neolithic" collections from Saudi Arabia, Man 62 (1962), 21—23.

9 F. G. Fedele, The Neolithic of North Yemen, MS. 1985, unpublished.

10 For an analysis of the latter, see F. Di Mario, MS. 1985, unpublished.